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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/709,677	05/21/2004	Carles Borrego Bel	8153ES	3676

23688 7590 08/10/2006

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EXAMINER
AMRANY, ADI

ART UNIT	PAPER NUMBER
2836	

DATE MAILED: 08/10/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/709,677	BORREGO BEL ET AL.	
	Examiner	Art Unit	
	Adi Amrany	2836	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 July 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-19* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *03 July 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. Applicants' claim for priority is not accepted. This application was filed under 35 U.S.C. 111(a), which means that there is no priority claim currently present in the application.

A proper claim for priority must refer to the application number, and not to the publication number. A priority claim requires that the priority document be identified by the application number assigned to it by the agency that initially received the application.

In order to properly claim foreign priority to the Spanish application, applicants needed to have either filed a national stage application of PCT/ES02/00613 under 35 U.S.C. 371 or file a continuation application of the original application.

To convert this application into a 371 application, applicants must file a petition with the PCT Legal Administration under 37 CFR 1.182.

To claim priority to the PCT application, applicants must file a Rule 78 petition with the Petitions Office.

Response to Arguments

2. Applicants' arguments filed July 3, 2006 have been fully considered but they are not persuasive.

Applicants contend that Kim (US 5,867,007), Lofty (US 5,850,351) and Miller (US 2005/0017654) do not combine to disclose the claimed limitations.

In response to applicants' arguments regarding Kim:

Kim discloses a battery management apparatus comprising two batteries of different voltages (column 1, line 63 to column 2, line 4; column 4, lines 2-3; column 5, lines 64 to column 6, line 5). That the batteries are not designed for use in a 42(36)V/14(12)V system is not relevant, as this specific system is not claimed in the present application. These battery levels are disclosed in the specification, but are not present in the claims. Kim also discloses how to allow the higher voltage battery to feed the lower voltage loads (column 4, lines 19-31) by using the DC/DC converter in the distributed management apparatus. Kim discloses sensing both a voltage drop and a voltage increase (column 4, lines 41-47). Lastly, Kim discloses a power generator (figure 1, item 20; column 3, lines 47-49). Management of the power generator into the system was not a claimed limitation in the present application.

In response to applicants' arguments regarding Lofty:

Lofty discloses a dual battery system, where each battery contains a monitoring module (figure, 1 items 11,12; column 2, liens 30-32). The modules include a microcomputer and monitor electronic characteristics of the respective battery (column 2, lines 47-49). The microcomputers of each module communicate with each other through a data network (figure 1, item 15; column 2, lines 34-38).

It is not necessary that Lofty disclose that the batteries are of different voltages, since that limitation is disclosed by Kim. Kim discloses an extra battery (figure 1, item 14), however, this battery is to supply power to an interface module (figure 1, item 13; column 2, lines 32-34 and 45-46). This interface module, however, has no counterpart in the current application.

Lastly, it is not necessary that Lofty disclose how to power lower voltage loads with a higher voltage battery, the use of a DC/DC converter to lower the voltage of the higher voltage battery, or how to incorporate a power generator into the apparatus, as each of these limitations is disclosed by Kim.

In response to applicants' arguments regarding Miller:

It is not relevant that Miller teaches away from using two batteries of different voltage outputs and using a DC/DC converter, because these limitations were disclosed by Kim, as discussed above. Miller discloses a plurality of loads (paragraph 16', figure 1, item 17-19), where each load comprises a power distribution unit (figure 1, items 14-16). The power distribution units maintain an average output voltage that is within the accepted range for each load. The Miller loads are configured to operated in a 42(36)V/14(12)V system.

Kim is analogous to Lofty and combine to disclose a dual-battery power supply, where each battery outputs a different voltage and comprises a monitoring module. the monitoring module detects the output of its respective battery and communicates this information to other battery monitoring modules. The monitoring modules are configured to turn each battery on/off based on the sensed voltage output levels.

Kim and Lofty are analogous to Miller and combine to disclose a dual-battery power supply, as discussed above, including a plurality of loads, where each comprises a power distribution unit.

Therefor, claims 1-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim, in view of Lofty, and in further view of Miller, as discussed below.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim (US 5,867,007), in view of Lofty (US 5,850,351), and in further view of Miller (US 2005/0017654).

Kim discloses an electrical system where the voltage of the first battery is lower than the second battery, a module, and a DC/DC converter (figure 2; column 1, line 63 to column 2, line 4; column 3, lines 56-64). Kim discloses that the batteries are provided with an automatic disconnection device (figure 2, items 611, 612, 631, 632; column 4, lines 20-22). The monitoring module disclosed by Kim is listed as a "smart battery circuitry". The smart battery circuitry comprises a voltage detector (figure 2, item 300; column 4, lines 32-51) that compares the voltage at the posts of the batteries to a preset level. In the event that the voltage level drops below the set level, the microcontroller (figure 2, item 500) of the smart battery circuitry emits a signal to trigger the switches of the automatic disconnection device.

Kim does not expressly disclose a communications network, the second battery is connected to a generator, and a plurality of loads that each comprise power distribution units.

Regarding the communications network, Lofty discloses a dual battery system, where each battery contains a monitoring module (figure 1, items 11, 12; column 2, lines 30-32). The modules include a microcomputer, and monitor electronic characteristics of the battery (column 2, lines 47-49). The microcomputers of each module communicate with each other through a data network (figure 1, item 15; column 2, lines 34-38).

Kim and Lofty are analogous because they are from the same field of endeavor, namely battery monitoring modules. Further, Kim and Lofty disclose a multiple battery electrical system, where each battery includes a microcontroller for monitoring performance characteristics of the battery.

At the time of the invention by applicants, it would have been obvious to a person of ordinary skill in the art to combine the electric source circuitry disclosed in Kim with the battery data network disclosed in Lofty.

The motivation for doing so would have been to create a battery selection circuit for devices with dual batteries.

Regarding the second battery connection to a generator and power distribution units within the loads, Miller discloses a dual voltage electrical load system. The system includes high-voltage and low-voltage power sources (paragraphs 3-4) of an automobile that are connected to a generator. Miller discloses a plurality of loads (paragraph 16; figure 1, item 17-19), where each load comprises a power distribution unit (figure 1,

items 14-16). The power distribution units maintain an average output voltage that is within the accepted range for each load.

Kim, Lofty, and Miller are analogous because they are from the same field of endeavor, namely, electronic distribution systems. Further, Miller is designed for use in a dual voltage electrical automotive system.

At the time of the invention by applicants, it would have been obvious to a person of ordinary skill in the art to combine the electric source circuitry disclosed in Kim and the data network disclosed in Lofty with the power distribution units disclosed in Miller.

The motivation for doing so would have been to create a smart circuitry that could detect the proper voltage levels at the source and distribute the power appropriately to the loads.

With respect to claim 2, Kim, Lofty and Miller disclose the system according to claim 1. Lofty further discloses that the communications network N is a dedicated network (figure 1, item 15; column 2, lines 34-38).

With respect to claim 3, Kim, Lofty and Miller disclose the system according to claim 1. Lofty further discloses that the communications network N is a shared bus, preferably a CAN bus. The common data bus disclosed in Lofty is a bus that is shared among the components of the system, thereby meeting the limitations of claim 3.

With respect to claim 4, the claim is rejected as discussed above in the rejection of claim 1. There is no disclosure in the specification that distinguishes the measurements of the State of Health (SOH) and State of Charge (SOC) of the battery

B1, as recited in claim 4, from the measurements of the sensed voltage and current of battery B1, as recited in claim 1.

With respect to claim 5, Kim, Lofty and Miller disclose the system according to claim 1, and further disclose the module SMM microcontroller or control node CN is included in an assembly for the control and management of all or part of the loads fed by said battery B1. Kim and Lofty, as discussed above, disclose that battery B1 includes a module SMM for monitoring and controlling the output of the battery B1. Further, this module SMM is included in an *assembly of components*, which includes the power distribution units and loads of Miller. Therefor, the references cited above combine to disclose the limitations of claim 5.

With respect to claim 6, Kim, Lofty and Miller disclose the system according to claim 1. Miller discloses said power distribution units (10), (20), (30) of the loads (12), (22), (23), (32), (33) controlled by said microcontroller (10a), (20a), (30a), supply loads (22), (32) of said sector, at a lower voltage level, fed from battery B1, said microcontrollers (23a), (33a) supply loads (23), (33) included in said higher-voltage-level sector fed by said battery B2. Miller discloses that system is for use in a dual-voltage electrical automotive system (paragraph 17, lines 8-10). Miller also discloses that any type and any number of bulb loads may be used with the power distribution units (paragraph 16, lines 7-13).

It would be obvious to a person of ordinary skill in the art to adjust the power distribution units according to its associated load. Further, it would be obvious that some of the loads may require one of the high or low voltages in the dual voltage

electrical automotive system. The power distribution units configured to the supply the high-voltage loads from the high-voltage battery would inherently be in a different group than the power distribution units configured to the supply the low-voltage loads from the low-voltage battery (Miller, paragraphs 3-4).

With respect to claim 7, Kim, Lofty and Miller disclose the system according to claim 6. Miller further discloses said loads (23), (33) are governed by power switches (23a), (33a), said *power* switches (23a), (33a) controlled by said corresponding microcontroller (20a), (30a) of said power distribution unit (paragraph 16, lines 2-5). The register (13), by activating the proper power distribution unit (bulb drivers 14-16), of Miller can selectively apply and/or remove power from each of the loads. It is obvious in the disclosure of Miller that the on/off signal transmitted by the power distribution units would activate a switch within the bulb to execute the command.

With respect to claim 8, Kim Lofty and Miller disclose the system according to claim 7, and further, it would have been obvious to use a field effect transistor (FET) as the switch. It is well known in the art to use FETs as switching devices.

With respect to claim 9, Kim, Lofty and Miller disclose the system according to claim 7. Miller discloses said power distribution units (10), (20), (30) comprise in cooperative combination said power switches (23a), (33a) and said respective microcontroller (20a), (30a) sensing the voltage or impedance at the output of said power switches (23a), (33a) prior to said controlled load (23), (33), allowing avoidance of connection to said microcontrolled load (23), (33) where said values are output of predetermined values (paragraph 16). Miller discloses that the power distribution units

can activate the loads to optimize low-peak currents (lines 10-15). It is obvious that the power distribution units would access the operability of each load prior to activating the load. The PDUs would do so in order to prevent a load operating outside of an acceptable margin from overloading the system.

With respect to claim 10, Kim, Lofty and Miller disclose the system according to claim 1. Lofty discloses each one of said batteries B1 and B2 is provided module SMM microcontroller for controlling at least a disconnection device (SDB) of said batteries (column 2, lines 30-32 and 47-62).

Claims 11-19 are rejected because the apparatus necessary to accomplish the method disclosed has been rejected in claims 1-10, as discussed above.

Conclusion

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Adi Amrany whose telephone number is (571) 272-0415. The examiner can normally be reached on weekdays, from 9am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Sircus can be reached on (571) 272-2800 x36. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

AA

BURTON S. MULLINS
PRIMARY EXAMINER

Appl. No. 10/709,677
Amd. Dated July 3, 2006
Reply to Office action of 04/06/2006
Replacement Sheet

AA

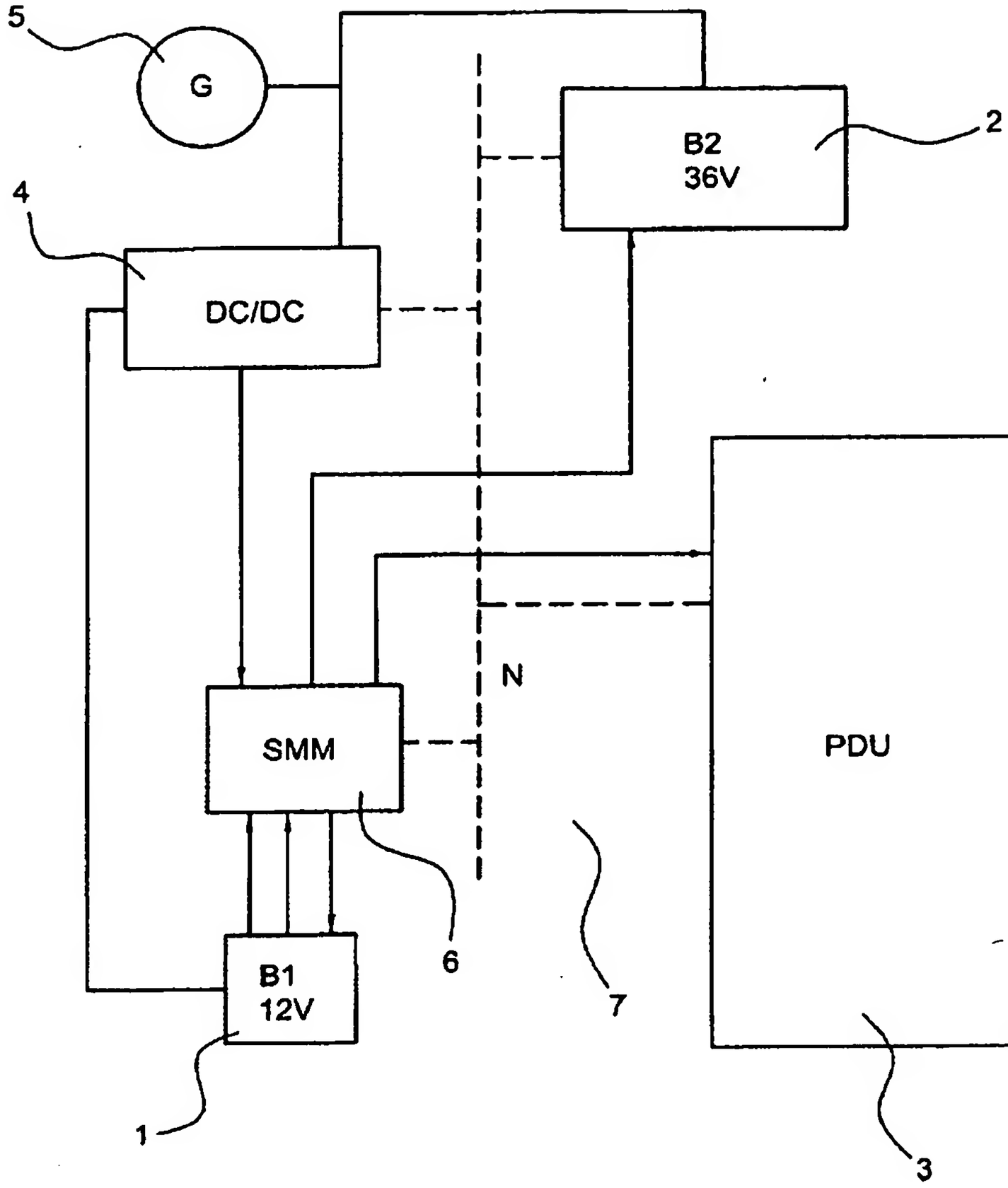

Fig. 1

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Appl. No. 10/709,677
Amd. Dated July 3, 2006
Reply to Office action of 04/06/2006
Replacement Sheet

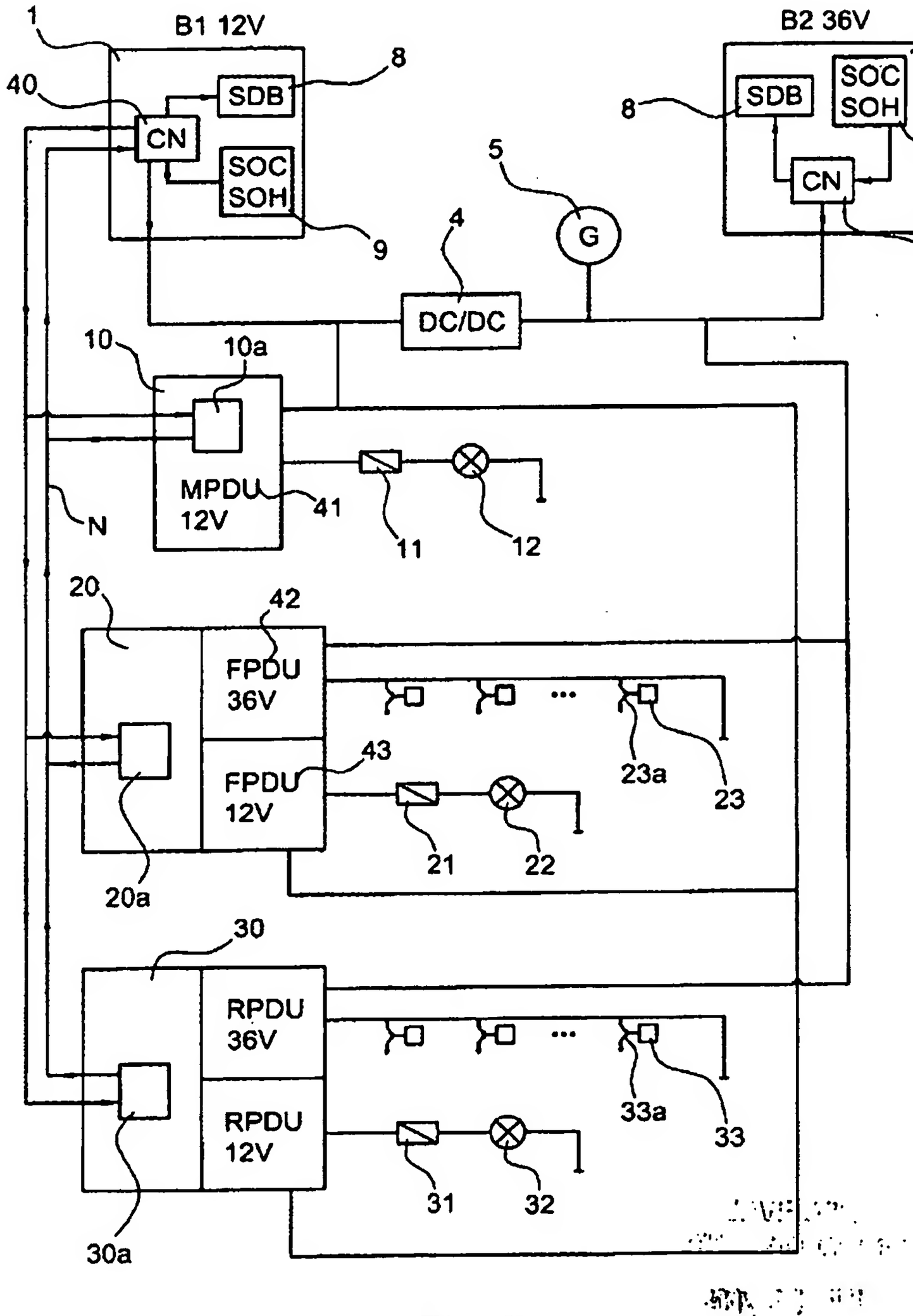

Fig. 2